



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
CHEMICAL SAFETY AND  
POLLUTION PREVENTION

Tuesday, December 06, 2016

MEMORANDUM

Subject: Acute Toxicity Review for EPA Reg. No.: 46781-RL  
DP Barcode: D435879  
Product Name: CaviCide Bleach

From: Ian Blackwell, Biologist  
Chemistry and Toxicology Team  
Product Science Branch  
Antimicrobials Division (7510P)

Through: Jenny Tao, Senior Toxicologist  
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To: Demson Fuller, PM 32/ Benjamin Chambliss  
Regulatory Management Branch  
Antimicrobials Division (7510P)

Applicant: Metrex Research

FORMULATION FROM LABEL:

<u>PC Code</u>	<u>Active Ingredient(s):</u>	<u>% by wt.</u>
014703	Sodium hypochlorite	0.91
	<u>Other Ingredient(s):</u>	<u>99.09</u>
	Total:	100.00

I BACKGROUND: Metrex Research has submitted a complete set of six acute toxicity studies to support the registration requirements of their new product, “CaviCide Bleach”. Stillmeadow, Inc. conducted these studies.

II RECOMMENDATIONS:

1. Each of the six studies is acceptable.

The acute toxicity profile for File Symbol 46781-RL is currently:

Study	MRID Number	Toxicity Category	Study Status
Acute Oral Toxicity	49921705	IV	Acceptable
Acute Dermal Toxicity	49921706	IV	Acceptable
Acute Inhalation Toxicity	49921707	IV	Acceptable
Primary Eye Irritation	49921708	IV	Acceptable
Primary Skin Irritation	49921709	IV	Acceptable
Dermal Sensitization	49921710	Nonsensitizer	Acceptable

III LABELING:

1. According to the EPA’s Label Review Manual, “A Signal Word is required for all registered pesticide products unless the pesticide product meets the criteria of Toxicity Category IV by all routes of exposure. If a signal word is used in this case, it must be ‘CAUTION’.” This is such a product. No Signal Word is required for this product. If the registrants would like to use a Signal Word for this product, they must use “CAUTION”.
2. No specific human-hazard precautionary statements are required except the statement “Keep Out of Reach of Children”, which is on the proposed label. No human-hazard precautionary statement revisions are required on the proposed label. The “Hazards to Humans and Domestic Animals” heading may be deleted if the applicant so chooses. If the registrant wishes to use precautionary statements for 46781-RL, they must use toxicity category III statements.

3. First Aid statements are not required for this product as it is a nonsensitizer, and, is otherwise assigned toxicity category IV for all routes of exposure.

**DATA REVIEW FOR ACUTE ORAL TOXICITY TESTING (§ 81-1, 870.1100)**

**Up and Down Procedure**

**Product Manager:** 32

**Reviewer:** I. Blackwell

**MRID No.:** 49921705

**Study Completion Date:** 4/26/2016

**Lab Study No.:** 19756-16

**Testing Laboratory:** Stillmeadow, Inc.

**Authors:** Lori Carter, BA

**Quality Assurance (40 CFR §160.12):** Included

**Test Material:** CaviWipes Bleach (solution)

**Species:** Sprague-Dawley albino rat

**Weight:** 193-210 g

**Age:** Young adult

**Source:** Texas Animal Specialties

**Conclusion:**

**1. LD<sub>50</sub> (mg/kg):**

**Males=** (not tested)

**Females=** > greater than 5,000 kg/mg  
body weight.

**Combined=** (not tested)

**2. The estimated LD<sub>50</sub> is greater than 5,000 mg/kg b.w.**

**3. Tox. Category:** IV **Classification:** Acceptable

**Procedure (Deviations from §81-1):** None

**Results:**

Dosage (mg/kg)	(Number Deaths/Number Tested)		
	Males	Females	Combined
5,000	Not tested	0/3	Not tested

**Observations:** The lab reported that the animals were normal at each observation.

**Gross Necropsy:** The lab reported pale lungs in 2/3 tested animals.

**DATA REVIEW FOR ACUTE DERMAL TOXICITY TESTING (§81-2, 870.1200)**

**Product Manager:** 32  
**MRID No.:** 49921706

**Reviewer:** I. Blackwell  
**Study Completion Date:** 4/26/2016  
**Lab Study No.:** 19755-16

**Testing Laboratory:** Stillmeadow, Inc.

**Author:** Lori Carter, BA

**Quality Assurance (40 CFR §160.12):** Included

**Test Material:** CaviWipes Bleach (Solution)

**Species:** Sprague-Dawley albino rats

**Weight:** Males= 253 – 292 g **Age:**

Females= 176-213 g

**Source:** Texas Animal Specialties

**Summary:**

1. **LD<sub>50</sub> (mg/kg):**  

**Males** > 5,050  
**Females** > 5,050  
**Combined** > 5,050
2. The estimated LD<sub>50</sub> is greater than 5,050 mg/kg b.w.
3. **Tox. Category:** IV **Classification:** Acceptable

**Procedure (Deviation From §81-2):** None

**Results:**

DOSAGE (mg/kg)	Reported Mortality		
	(NUMBER DEATHS/NUMBER TESTED)		
	Males	Females	Combined
5,050	0/5	0/5	0/10

**Observations:** All animals were reported normal at each observation.

**Gross Necropsy Findings:** Gas in cecum.

**DATA REVIEW FOR ACUTE INHALATION TOXICITY (§81-3, 870.1300)**

**Product Manager:** 32  
**MRID No.:** 49921707

**Reviewer:** I. Blackwell  
**Study Completion Date:** 4/29/2016  
**Lab Study No.:** 19756-16

**Testing Laboratory:** Stillmeadow, Inc.  
**Author:** Andrew Doig, M.S.

**Quality Assurance (40 CFR §160.12):** Included

**Test Material:** CaviWipes Bleach (Solution)  
**Concentration:** 2.21 mg/L

**Species:** Sprague-Dawley albino rats  
**Weight:** Males= 235-280 g; Females= 170-182 g  
**Age:**  
**Source:** Texas Animal Specialties

**Summary:**

1. **LC<sub>50</sub> (mg/L)**  

**Males** > 2.21  
**Females** > 2.21  
**Combined** > 2.21
2. **The estimated LC<sub>50</sub> is greater than 2.21 mg/L of air.**
3. **MMAD:** 2.6  $\mu$ m
4. **Toxicity Category:** IV **Classification:** Acceptable

**Procedure (Deviation From §81-3):** None

**Results:**

**Reported Mortality**

Exposure Concentration	(NUMBER DEATHS/NUMBER TESTED)		
	Males	Females	Combined
2.21 mg/L	0/5	0/5	0/10

Chamber Atmosphere			
Dose Level	MMAD	GSD	particles < 4.1 µm
2.21 mg/L	2.6 µm	1.8 µm	77.59%

Chamber Environment	
Chamber Volume	500 L
Airflow	385 LPM
Temperature	23.3-24.1° C
Relative Humidity	74-88%

**Clinical Observations:** All animals appeared normal throughout the observation period.

**Gross Necropsy Findings:** Lungs pale.

**DATA REVIEW FOR PRIMARY EYE IRRITATION TESTING (§81-4, 870.2400)**

**Product Manager:** 32  
**MRID No.:** 49921708

**Reviewer:** I. Blackwell  
**Study Completion Date:** 4/26/2016  
**Lab Study No.:** 19757-16

**Testing Laboratory:** Stillmeadow, Inc.  
**Author(s):** Lori Carter, BA

**Quality Assurance (40 CFR §160.12):** Included

**Test Material:** CaviWipes Bleach (Solution)  
**Dosage:** 0.1 mL

**Species:** New Zealand White albino rabbit      **Sex:** 2 males + 1 female  
**Weight:** 2.7 – 3.0 kg      **Age:** Young adult  
**Source:** Veterinary Clinical Resources

**Summary:**

1. **Toxicity Category:** IV
2. **Classification:** Acceptable

**Procedure (Deviations From §81-4):**

**Results:**

Observations	(number "positive"/number tested)							
	Hour	Days						
	1	1	2	3	4	7	14	21
Corneal Opacity	0/3	0/3	0/3	0/3	---	---	---	---
Iritis	0/3	0/3	0/3	0/3	---	---	---	---
Conjunctivae								
Redness	0/3	0/3	0/3	0/3	---	---	---	---
Chemosis	2/3	0/3	0/3	0/3	---	---	---	---
Discharge	1/3	0/3	0/3	0/3	---	---	---	---

--- = no observations at this point



## DATA REVIEW FOR SKIN IRRITATION TESTING (§81-5, 870.2500)

**Product Manager:** 32  
**MRID No.:** 49921709

**Reviewer:** I. Blackwell  
**Study Completion Date:**  
**Lab Study No.:**

**Testing Laboratory:** Stillmeadow, Inc.  
**Study Director:** Lori Carter, BA

**Quality Assurance (40 CFR §160.12):** Included

**Test Material:** CaviWipes Bleach (Solution)  
**Dosage:** 0.5 mL

**Species:** New Zealand White albino rabbit  
**Weight:** 2.5-2.7 kg **Age:** Young adult  
**Source:** Veterinary Clinical Resources

### Summary:

- 1. Toxicity Category:** IV
- 2. Classification:** Acceptable

**Procedure (Deviations From §81-5):** None

**Results:** One-of-three test material-treated animals displayed very slight erythema from one-hour post-exposure to 72 hours post exposure. The lab reported no other dermal irritation.

**Special Comments:** None

## DATA REVIEW FOR DERMAL SENSITIZATION TESTING (§81-6, 870.2600)

**Product Manager:** 32  
**MRID No.:** 49921710

**Reviewer:** I. Blackwell  
**Study Completion Date:** 5/9/2016  
**Lab Study No.:** 19759-16

**Testing Laboratory:** Stillmeadow, Inc.  
**Author:** Lori Carter, BA

**Quality Assurance (40 CFR §160.12):** Included

**Test Material:** CaviWipes Bleach (Solution)

**Positive Control Material:**  $\alpha$ -Hexycinnamaldehyde

**Species:** Hartley-albino guinea pig  
**Weight:** 356-488 g  
**Source:** Charles River  
**Age:** Young adult

**Method:** Modified Buehler Method

### Summary:

1. **This Product is not a dermal sensitizer.**
2. **Classification:** Acceptable

**Procedure (Deviation from §81-6):** None

### Procedure:

Buehler Method

Induction: Ten males and ten females were dosed with 0.4 mL of undiluted test material using a 20 x 20 mm lint cotton patch. After 6 hours, the patches and test material were removed and the exposure site cleansed with distilled water. This procedure was repeated once a week for the following two weeks (Days 7 and 14 of the study), for a total of three induction exposures.

Challenge: Fourteen days after the third induction exposure, the test material-induced animals were challenged using the same dosing procedure with 0.4 mL of a solution (the

Highest Non-Irritating Concentration) of the test material on a naïve spot. A 1% challenge group was also tested.

**Results:**

Induction: The lab reported that there was no erythema or edema following induction in the test material-induced animals.

Challenge: The lab reported that there was no erythema or edema in either the

Positive control

Induction: The lab reported no irritation following induction treatment #1. Following induction treatment #2, 7/10 animals displayed very faint, usually nonconfluent erythema. After induction treatment #3, 6/10 had faint confluent erythema and 4/10 animals displayed very faint, usually nonconfluent erythema.

Challenge: Twenty-four hours after challenge, 9/10 had faint confluent erythema and 1/10 animals displayed very faint, usually nonconfluent erythema.